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MIPR NUMBER: 95MM5581

TITLE: Availability, Accessibility, and Adequacy of Health Care Provided to USAF Active Duty Women in Theater During Operation Desert Shield/Desert Storm

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78284-7976

REPORT DATE: October 1995

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	October 1995	Final (9 Jan 95 - 30 Sep 95)

4. TITLE AND SUBTITLE

Availability, Accessibility, and Adequacy of Health Care Provided to USAF Active Duty Women in Theater During Operation Desert Shield/Desert Storm

5. FUNDING NUMBERS

95MM5581

6. AUTHOR(S)

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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Armstrong Laboratory/PS
Brooks AFB TX 78235-5241

UTHSC-Houston School of Public Health (San Antonio Module)
San Antonio TX 78284-7976

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

U.S. Army Medical Research and Materiel Command
Fort Detrick MD 21702-5012

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for public release; distribution unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

Using data from the Department of Defense Desert Storm File, a stratified random sample of 186 USAF female Operation Desert Shield/Storm (ODS/S) veterans were interviewed by telephone. Participants were surveyed regarding self-reported medical problems and health care experienced while deployed to ODS/S. Results based on analysis of 186 surveys show generally high overall ratings for availability, accessibility, and adequacy of the health care received during deployment, while identifying numerous opportunities for improvement. In particular, mental health problems were frequent (20%) and women reported problems with access to care and reluctance to seek care for these problems. Gastrointestinal illnesses during ODS/S were the most prevalent (affecting 33%) and orthopedic injuries the most likely to lead to a provider visit (in 90% of cases). Using a definition of declining health status and physical fitness as a change from "excellent," very good," or "good" before deployment to "poor" or "fair" afterward, the percentages of women reporting declining health status and physical fitness level were 15.9% and 8.5%, respectively. Data show a 12% relative increase in prevalence of cigarette smoking from pre- to during deployment. Further investigation is needed to examine possible risk factors associated with declines in health status and physical fitness level.

14. SUBJECT TERMS

Defense Women's Health Research Program; Women's Health; Operation Desert Shield/Desert Storm; Military Medicine

15. NUMBER OF PAGES

48

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	Unlimited

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Anthony L. R... 19OCT95

PI - Signature Date

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INTRODUCTION

Female participation in military deployments and operations has increased significantly over the past decade. With the reduction in gender-specific barriers and the downsizing of military forces, this trend will continue. Both the number of women participants in military operations and the number of occupational specialties represented have increased. Consequently, preventive medicine interventions (vaccines, antimalarials, etc.) previously administered to all male "combat forces" need to be assessed for both genders. For example, the use of doxycycline for antimalarial prophylaxis reportedly increased the incidence of vaginal yeast infections experienced in Operation Desert Shield/Desert Storm (ODS/S). Additionally, the capabilities of medical facilities and personnel on site may need to be reevaluated. Changes in military medical planning doctrine should be based on problems identified by both after-action reports and information obtained from individuals directly participating in the operations.

This study was designed as a survey to assess the availability, accessibility, and adequacy of health care provided to USAF active duty women in theater during ODS/S. The survey questionnaire was primarily developed to obtain descriptive data addressing the following research questions: 1. What were the gender-unique problems experienced by female ODS/S participants? and 2. What perceptions do female ODS/S participants have of the availability, accessibility, and adequacy of health care received in theater during ODS/S?

The study was conducted through a collaboration between the U.S. Air Force Office for Prevention and Health Services Assessment (Robbins); the University of Texas Health Science Center (UTHSC)–Houston School of Public Health (Herbold, Cooper); and UTHSC–San Antonio (Neff, Mitzel). Female USAF veterans selected for the study were identified through the official Department of Defense (DOD) Desert Storm File.

BODY

METHODS

Using an extract from the DOD Desert Storm File supplied by the Defense Manpower Data Center in Monterey, CA, the military principal investigator (PI) drew the sample using stratified simple random sampling. The extract file contained only USAF female service members who were on active duty at the time they deployed in support of ODS/S. Selection probabilities were unequal across the strata and were determined based on the distribution of demographic characteristics in the total population. These distributions were determined by performing frequency counts of several variables (e.g., rank, age) on the total population. Stratification was by age groups and occupational categories.

The survey instrument was a questionnaire designed by the research team and pretested among active duty women. Members of the sample were mailed a copy of the questionnaire by the

university researchers and asked to complete and return a copy of USAMRDC Form 60-R if they wished to participate in the study. Participants were notified that the actual collection of survey responses would take place by phone at a later date. A professional survey firm was retained to accomplish the telephone interviewing. A data file without personal identifying information was then delivered to the military PI for analysis.

Post-stratification weighting was used to correct for sampling and non-sampling sources of error, as well as to adjust for differences in rank distribution between the sample and the total population. Sources of error included unequal selection probabilities across sampling strata and differential rates of non-response across sampling strata. The post-stratification variable used was rank group (junior enlisted, senior enlisted, and officers). Population counts from the official DOD Desert Storm File were used to compute post-stratification weights as described by Aday.[1]

All analyses of survey data were performed using Epi Info v. 6.02.[2] To obtain weighted sample means, proportions, and associated 95% confidence intervals, the CSAMPLE module was used, which accounts for the stratified sampling design and allows for unequal weighting of different strata. All confidence intervals are 2-sided, with an α level set at .05.

RESULTS

Demographics

(Note: All results given in this section are crude, i.e., unadjusted for any sampling errors or demographic deviations from the total population of USAF women deploying to ODS/S. This is to make possible direct comparisons of sample characteristics to characteristics of the total population.)

The data set for these analyses contained 186 surveys, representing approximately 3.9% of the total population of 4,748 USAF service women deployed to ODS/S from active duty. At the time of deployment, 98.4% of the sample women were serving on extended active duty, while 1.1% were Reserve or National Guard personnel on active duty. Although a slight majority of the sample women have since retired or joined the National Guard and Reserve, 45.2% are still on active duty. Average time deployed during ODS/S was 5.1 months, with a range of 3 weeks to 12 months.

Sample women appear representative of the total population. Educational attainment of the sample was similar to the total population, with 20.4% of the sample and 18.4% of the total population having a bachelor's degree at time of deployment. Distribution of marital status also differed little: the percentages of sample women who were single, married, and divorced at the time of deployment were 44.6%, 43.5%, and 10.2%, respectively; for the total population these percentages were 47.9%, 41.4%, and 10.7%. Age distributions for the two groups were also

similar. Age at deployment was approximated as the respondent's age on 1 January 1991. Using this method, the average age at deployment for women in the sample was 28.4 years, with a range of 19 to 47; mean age for the total population (at time of deployment) was 26.8, with a range of 18 to 52. As expected, given that approximately 5 years have passed since many of the women were deployed, the average *current* age of the sample population was 32.8, with a range of 24 to 51.

Distribution of ranks differed somewhat between the groups, with the sample population having more officers and senior enlisted members. The percentages of junior enlisted (E1-E3), senior enlisted (E4-E9), and officers (O1 and up) in the groups were: 18.3%, 54.3%, and 26.3% in the sample; and 26.7%, 50.9%, and 22.5% in the total population.

A small percentage of women in the sample (2.1%) reported that they did not actually deploy overseas during ODS/S, but performed wartime duties in CONUS.

Lifetime Health Status

Participants were asked to rate the health status they had during most of their life. The most frequent response was, "very good" (48.58%), with only 1.52% reporting their health had been either "poor" or "fair" during most of their life (Table 1). However, 17.42% of women surveyed indicated they had one or more long-term or recurring illnesses prior to deploying to ODS/S.

Health Status

The percentage of women whose self-reported health status was fair or poor increased dramatically from pre- to post-deployment. Only 1.29% of women in the sample reported poor or fair health status prior to deployment (Table 1). However, for the periods during and after deployment, 6.65% and 16.37% reported poor or fair health status, respectively. The increase in prevalence of self-reported poor or fair health status from pre- to post-deployment is statistically significant, as can be seen from the data in Table 1, since the confidence intervals for the pre- and post-ODS/S estimates do not overlap. Using a definition of declining health status as a change in a respondent's self-reported health status from "good," "very good," or "excellent" before deployment to "poor" or "fair" after ODS/S, the prevalence of declining health status in the sample was 15.87%.

Physical Fitness

The prevalence of lower levels of self-reported physical fitness also increased from pre- to post-deployment. For the period prior to deployment, 4.31% of women reported poor or fair physical fitness (Table 1). For the periods during and after deployment, 6.36% and 11.00% reported poor

or fair physical fitness, respectively. Using a definition of declining physical fitness level as a change in a respondent's self-reported physical fitness level from "good," "very good," or "excellent" before deployment to "poor" or "fair" after ODS/S, the prevalence of declining physical fitness level in the sample was 8.48%.

Sources of Routine Health Care

Women reported they received their routine health care before, during and after the ODS/S mainly from a military clinic or hospital. The proportion of women receiving routine medical care from a military clinic or hospital before, during, and after ODS/S was 97.47%, 76.29%, and 94.08%, respectively (Table 2). A small percentage of women reported receiving routine health care from a civilian physician: 2.53% before, 0% during, and 2.21% after ODS/S (using health insurance); and 0% before, 0% during, and 1.29% after ODS/S (not using health insurance).

None of the surveyed women reported receiving routine health care at a VA medical facility before or during ODS/S and only 0.50% received routine care at a VA facility after ODS/S. None of the women reported receiving their routine health care from a civilian emergency room before, during, or after ODS/S.

Percentages of women reporting care from various other specified sources were: 0% before; 19.12% during; and 0.92% after ODS/S. The proportion of women who reported receiving care from unspecified sources was 0%, 4.59%, and 1.01% before, during, and after ODS/S, respectively.

Sources of OB-GYN Health Care

A high percentage of women reported they had received OB-GYN health care from a military clinic or hospital before, during, and after deployment (Table 3). Percentages identifying military sources of OB-GYN care were: 96.00% before; 63.63% during; and 92.02% after ODS/S. Small percentages of women received OB-GYN health care from a civilian physician: 2.71% before, 0.53% during, and 4.22% after ODS/S (using health insurance); and 0% before, 0% during, and 2.25% after ODS/S (not using health insurance).

None of the women reported receiving OB-GYN health care from a VA medical facility before or during ODS/S, and only 0.50% received OB-GYN care after ODS/S from a VA medical facility. None of the women surveyed reported receiving OB-GYN health care from a civilian emergency room.

Percentages of women receiving care from various other specified sources were: 0% before; 12.36% during; and 0% after deployment. The proportion reporting OB-GYN care from unspecified sources was 1.29% before, 23.47% during, and 1.01% after ODS/S.

Medical Problems Experienced During ODS/S

Women in the sample were asked a lengthy series of questions regarding health-related problems experienced during deployment to ODS/S and medical treatment received. First they were asked if during deployment they had experienced a particular kind of medical problem (e.g., injury due to heat or cold). If they indicated they had, they were asked follow-on questions. For each of the classes of disease and injury below, the discussion is restricted to women who indicated that they had experienced that particular kind of medical problem.

Gastrointestinal Conditions

(includes: diarrhea; gastroenteritis; dysentery; gastritis; food poisoning; constipation; intestinal parasites)

Of the total women surveyed, 33.48% indicated they had experienced a gastrointestinal illness during deployment (Table 4). Nearly all of these women, 94.25%, reported that their illness began during the deployment (Table 5). A substantial percentage (40.25%) of these women reported that their illness persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these illnesses during ODS/S was 69.72%. When asked whether they would have sought care for these illnesses had they been in the U.S., a somewhat larger percentage, 74.99%, indicated they would. Those who indicated they did not seek care for their illness were asked why; the most frequent response was, "I did not think it was severe or important enough" (13.97%). When asked how many times they had been seen by medical personnel for their illness, the most frequent response the women gave was, "only once" (37.07%). When asked how satisfied they were with the care and treatment received for their illness, 60.02% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their illness, 56.71% indicated male, 7.27% indicated female, and 7.25% indicated both. A small percentage, 18.21%, responded that they were embarrassed by their illness. When asked how quickly they were seen for their illness, the most common response was, "immediately" (36.73%). However, when asked how quickly they thought they *should* have been seen for their illness, 51.44% responded "immediately."

Dermatological Conditions

(includes: viral rashes or lesions; cellulitis; fungal or bacterial infections; contact dermatitis; dermatitis caused by insect bites; skin ulcers and scabs)

Of the total women surveyed, 16.65% reported they had experienced a dermatological condition during deployment (Table 4). Most of these women, 83.47%, indicated that their illness began during the deployment (Table 6). A substantial percentage (63.01%) of these women reported that their condition persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these conditions during ODS/S was 41.15%. When asked whether they would have sought care for these conditions had they been in the U.S., a somewhat larger percentage, 71.48%, indicated they would. Those who indicated they did not seek care for their illness were asked why; the most frequent response was, "I did not think it was severe or important enough" (18.23%). When asked how many times they had been seen by medical personnel for their illness, the most frequent response the women gave was, "two to three times" (24.68%). When asked how satisfied they were with the care and treatment received for their illness, 40.76% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their illness, 42.00% indicated male, 0% indicated female, and 2.76% indicated both. A small percentage, 17.55%, responded that they were embarrassed by their illness. When asked how quickly they were seen for their illness, the most common response was, "a day or two" (38.05%). However, when asked how quickly they thought they *should* have been seen for their illness, 34.92% responded "immediately."

Gynecological Conditions

(includes: infectious disease; pelvic inflammatory disease; complications of menstruation; pregnancy; genital rashes; bladder infection; abortion and or miscarriage)

Of the total women surveyed, 18.59% indicated they had experienced a gynecological condition during deployment (Table 4). Most of these women, 84.08%, reported that their illness began during the deployment (Table 7). A substantial percentage (65.52%) of these women reported that their illness persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these illnesses during ODS/S was 74.49%. When asked whether they would have sought care for these illnesses had they been in the U.S., a slightly larger percentage, 88.80%, indicated they would. Those who indicated they did not seek care for their illness were asked why; the most frequent response was, "I did not think it was severe or important enough" (6.96%), "I would have to wait too long before being seen" (5.44%), and "I did not have confidence in the health care providers" (6.96%). When asked how many times they had been seen by medical personnel for their illness, the most frequent response the women gave was, "two to three times" (39.31%). When asked how satisfied they were with the care and treatment received for their illness, 61.03% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their illness, 66.00% indicated male, 4.48% indicated female, and 10.64% indicated both. A large percentage, 49.63%, responded that they were embarrassed by their illness. When asked how quickly they were seen for their illness, the most common response was, "more than one week" (31.96%). However, when asked how quickly they thought they *should* have been seen for their illness, 43.16% responded "immediately."

Eye Illnesses and Injuries

(includes: conjunctivitis; eye infection; eye irritation; corneal abrasions; foreign bodies; solar injury; laser injury; injury not associated with trauma)

Of the total women surveyed, 3.85%, indicated they had experienced a eye illness/injury during deployment (Table 4). All of these women reported that their illness began during the deployment (Table 8). None of these women reported that their illness persisted after the deployment.

The percentage of women who reported seeking medical care for these illnesses during ODS/S was 75.00%. When asked whether they would have sought care for these illnesses had they been in the U.S., a slightly larger percentage, 86.28%, indicated they would. Those who indicated they did not seek care for their illness were asked why; the most frequent response was, "I did not think it was severe or important enough" (11.93%). When asked how many times they had been seen by medical personnel for their illness, the most frequent response the women gave was, "only once" (51.15%). When asked how satisfied they were with the care and treatment received for their illness, 63.07% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their illness, 75.00% indicated male, while none of the women reported female or both. A small percentage, 11.93%, responded that they were embarrassed by their illness. When asked how quickly they were seen for their illness, the most common response was, "immediately" (50.77%). However, when asked how quickly they thought they *should* have been seen for their illness, 58.08% responded "in a day or two."

Emotional Health and Mental Well-Being

(includes: depression; situational reaction; anxiety; psychosis; suicidal ideation; behavioral reaction to medication or other substance)

Of the total women surveyed, 19.76% indicated they had experienced a problem with their emotional health during deployment (Table 4). Nearly all of these women, 90.71%, reported that their illness began during the deployment (Table 9). A substantial percentage (49.04%) of these women reported that their illness persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these conditions during ODS/S was 33.06%. When asked whether they would have sought care for these illnesses had they been in the U.S., a somewhat larger percentage, 56.65%, indicated they would. Those who indicated they did not seek care for their illness were asked why; the most frequent response was, "I did not think it was severe or important enough" (28.76%). When asked how many times they had been seen by medical personnel for their illness, the most frequent response the women gave was, "four or more times" (23.95%). When asked how satisfied they were with the care and treatment received for their illness, 26.60% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their illness, 34.46% indicated male and

6.52% indicated both male and female. A large percentage, 49.27%, responded that they were embarrassed by their illness. When asked how quickly they were seen for their illness, the most common response was, "more than one week" (45.69%). However, when asked how quickly they thought they *should* have been seen for their illness, 50.82% responded "immediately."

Orthopedic/Surgical Injuries

(includes: fractures; sprains; lacerations; abrasions; internal injuries; burns and thermal injuries other than sunburn; non-environmental animal bites; other trauma, including battle, non-battle, occupational, and recreational incidents)

Of the total women surveyed, 10.25% indicated they had experienced an orthopedic/surgical injury during deployment (Table 4). Most of these women, 82.52%, reported that their injuries began during the deployment (Table 10). A large percentage (43.07%) of these women reported that their injuries persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these injuries during ODS/S was 90.61%. When asked whether they would have sought care for these injuries had they been in the U.S., all of the women reported they would. Those who indicated they did not seek care for their injury were asked why; the most frequent response was, "My friends would make fun of me" (4.48%), "I could not get an appointment or get to sick call" (4.48%), "I did not have confidence in health care provider(s)" (4.48%), "I was too embarrassed to see a health care provider" (4.48%), and "I did not have enough time during the duty day" (4.48%). When asked how many times they had been seen by medical personnel for their injury, the most frequent response the women gave was, "two to three times" (34.63%). When asked how satisfied they were with the care and treatment received for their injury, 73.13% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their injury, 78.04% indicated male, 7.66% indicated female, and 4.91% indicated both. A small percentage, 4.48%, responded that they were embarrassed by their injury. When asked how quickly they were seen for their injury, the most common response was, "immediately" (62.03%). However, when asked how quickly they thought they *should* have been seen for their injury, 68.65% responded "immediately."

Medical Illnesses

(includes: cardiac related problems; neurological problems; allergic reactions; fevers not apparently associated with diagnosed illness or injury)

Of the total women surveyed, 14.76% indicated they had experienced a medical illness during deployment (Table 4). Most of these women, 86.66%, reported that their illness began during the deployment (Table 11). A substantial percentage (58.37%) of these women reported that their illness persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these illnesses during ODS/S was 72.01%. When asked whether they would have sought care for these illnesses had they been in the U.S., a slightly larger percentage, 83.55%, indicated they would. Those who indicated they did not seek care for their illness were asked why; the most frequent response was, "I did not have confidence in the health care providers" (11.84%). When asked how many times they had been seen by medical personnel for their illness, the most frequent response the women gave was, "only once" (36.23%). When asked how satisfied they were with the care and treatment received for their illness, 60.25% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their illness, 66.09% indicated male and 6.82% indicated both male and female. A small percentage, 16.45%, responded that they were embarrassed by their illness. When asked how quickly they were seen for their illness, the most common response was, "immediately" (52.12%). However, when asked how quickly they thought they *should* have been seen for their illness, 69.62% responded "immediately."

Injuries Due to Heat or Cold

(includes: heat stroke; heat cramps; heat exhaustion; dehydration; sunburn; frostbite; hypothermia; chilblains)

Of the total women surveyed, 14.98% indicated they had experienced a heat/cold injury during deployment (Table 4). All of these women reported that their injury began during the deployment (Table 12). A small percentage (8.60%) of these women reported that their injury persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these injuries during ODS/S was 61.37%. When asked whether they would have sought care for these injuries had they been in the U.S., a nearly identical percentage, 61.66%, indicated they would. Those who indicated they did not seek care for their injury were asked why; the most frequent response was, "I did not think it was severe or important enough" (11.96%). When asked how many times they had been seen by medical personnel for their illness, the most frequent response the women gave was, "only once" (48.60%). When asked how satisfied they were with the care and treatment received for their illness, 60.90% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their illness, 43.61% indicated male, 12.44% indicated female, and 3.36% indicated both. A small percentage, 5.53%, responded that they were embarrassed by their illness. When asked how quickly they were seen for their illness, the most common response was, "immediately" (66.23%). However, when asked how quickly they thought they *should* have been seen for their illness, 61.84% responded "immediately."

Dental Injuries, Diseases, or Conditions

(includes: dental injury; disease; condition requiring care by a dentist)

Of the total women surveyed, 8.22% indicated they had experienced a dental injury, disease, or condition during deployment (Table 4). Most of these women, 84.32%, reported that their condition began during the deployment (Table 13). A small percentage (37.35%) of these women reported that their condition persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these conditions during ODS/S was 78.73%. When asked whether they would have sought care for these conditions had they been in the U.S., 100.00% indicated they would. Those who indicated they did not seek care for their condition were asked why; the most frequent response was, "I did not have confidence in the health care providers" (11.71%). When asked how many times they had been seen by medical personnel for their condition, the most frequent response the women gave was, "two to three times" (45.88%). When asked how satisfied they were with the care and treatment received for their condition, 64.30% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their condition, 52.98% indicated male and 24.37% indicated female. None of the women surveyed indicated that they were embarrassed by their condition. When asked how quickly they were seen for their condition, the most common response was, "immediately" (37.52%). However, when asked how quickly they thought they *should* have been seen for their condition, 39.10% responded "immediately."

Other Conditions

(includes other conditions not listed above)

Of the total women surveyed, 7.56% indicated they had experienced other conditions not mentioned in the survey during deployment (Table 4). All of these women reported that their condition began during the deployment (Table 14). A small percentage (39.91%) of these women reported that their condition persisted after returning from ODS/S.

The percentage of women who reported seeking medical care for these conditions during ODS/S was 69.66%. When asked whether they would have sought care for these conditions had they been in the U.S., a somewhat larger percentage, 93.35%, indicated they would. Those who indicated they did not seek care for their condition were asked why; the most frequent response was, "I did not think it was severe or important enough" (17.03%). When asked how many times they had been seen by medical personnel for their condition, the most frequent response the women gave was, "only once" (39.33%). When asked how satisfied they were with the care and treatment received for their condition, 42.13% indicated they were "somewhat" or "very satisfied." When asked the gender of the provider(s) they saw for their condition, 69.66% indicated male and 6.65% indicated both male and female. None of the women surveyed responded that they were embarrassed by their condition. When asked how quickly they were

seen for their condition, the most common response was, "immediately" (36.57%). However, when asked how quickly they thought they *should* have been seen for their condition, 54.02% responded "immediately."

Satisfaction Summary Measures

Survey participants were asked several questions measuring their satisfaction with the health care received during ODS/S. Because these questions only pertain to those who received health care, the discussion is restricted to those women who reported having one or more health problems.

When the women were asked to rate the professionalism and concern of the health care providers, the most frequent response was, "excellent" (32.08%), on a scale ranging from "poor" to "excellent" (Table 15). (The same scale was used for all questions where the participants were asked to assign a rating.) Notwithstanding, the percentage of participants rating the providers' professionalism and concern as either "poor" or "fair" was 22.31%. The most frequent rating given to the providers' sensitivity to the women's health concerns was also, "excellent" (31.32%); however, 22.81%, rated the sensitivity of providers as either "poor" or "fair." When queried concerning the regard for privacy by providers during physical examinations or laboratory procedures, the most frequent response was, "good" (31.83%), with only 12.12% rating providers' concern for privacy as either "poor" or "fair."

To help give context to the satisfaction data, participants were asked how frequently they had personally used medical services during deployment. Frequency of use data is useful in that impressions based on only one interaction with the medical care system might be less stable than ones based on several interactions with the system. The proportion of women who responded that they had used medical care services during ODS/S zero times (never) was 6.50%; one time, 24.71%; two times, 19.76%; three times, 9.82%; and four or more times, 39.22% (Table 16).

Quality and Other Summary Measures

Women participating in the survey were asked a series of questions intended to summarize their impressions of the quality of health care during ODS/S. When asked to rate the overall quality of medical care, the most frequent response was, "good" (28.12%) (Table 17). The percentage rating overall medical care quality as either "poor" or "fair" was 20.10%.

Participants were also asked to rate individual components of the medical care system. The most common rating of physicians was, "very good" (35.07%), with 11.14% rating physicians either "poor" or "fair." For other providers, the most common rating was, "very good" (42.61%), with 8.43% of participants rating other providers either "poor" or "fair." The most common rating of support staff was, "very good" (49.44%), with 5.94% rating support staff either "poor" or "fair." When asked to rate facilities, the women's most frequent response was, "good" (31.13%), with a

substantial proportion, 26.01%, rating facilities as either "poor" or "fair." Participants' most frequent rating of the accessibility of the medical care system was, "very good" (35.20%), with 12.34% rating accessibility as either "poor" or "fair." The most frequent rating of availability of medical services was, "good" (38.16%), with 14.19% of participants rating availability as either "poor" or "fair." For adequacy of health care, the most frequent rating was, "good" (35.79%), with 13.41% of the women rating adequacy either "poor" or "fair." When asked to compare medical care during ODS/S to that received during peacetime, the most frequent rating was, "good" (30.62%), with 32.34% rating deployment health care either "poor" or "fair" as compared with care during peacetime.

Finally, participants were asked for an overall rating of medical services during ODS/S. The most frequent response was, "good" (34.93%), with 13.81% giving an overall rating of either "poor" or "fair."

Behavioral Factors Impacting Health Status

The percentage of women who reported that prior to deploying they exercised at least three times weekly for 30 minutes was 62.68% (Table 18).

Participants were also asked about their smoking status during different time periods. The proportion indicating that they smoked cigarettes prior to deployment was 28.85%; during ODS/S, 32.21%; and after ODS/S, 26.67%. The mean reported number of cigarettes smoked per day showed a similar pattern of rising and falling. The mean prior to deployment was 13.7 (range, 0-40); during ODS/S, 18.6 (range, 0-60); and after ODS/S, 14.2 (range, 0-40) (Table 18A).

Marriage-Related Topics

Several questions were asked of the participants who indicated that they were married at the time of deployment (please see Demographics above). The percentage of married women who indicated that their spouse also served in ODS/S was 20.31% (Table 19). The proportion who reported separation or divorce since deploying to ODS/S was 27.08%. Participants were asked about the employment status of their spouse at the time of deployment. The percentage responding that their spouse was on active duty was 43.47%; in the Reserve or National Guard, 2.39%; employed full time outside the home, 30.27%; employed part time outside the home, 3.78%; homemaker, 3.69%; and unemployed, 2.81%.

Changes in Household Income

Women in the survey were asked about changes in their household income during ODS/S. The percentage indicating that income increased was 33.70%; decreased, 23.54%; and stayed the same, 42.77% (Table 19).

Dependent Children

The proportion of participants reporting they had children at home or school at time of deployment was 26.48% (Table 19). Among these women the mean number of children was 1.4 (range, 1-3) (Table 19A). The mean age of the oldest child was 4.3 years (range, 0-16 years). When asked who took care of the children during ODS/S, the most frequent response participants gave was, "a relative" (88.88%).

Preferences for Provider Gender

Several questions were asked regarding preferences for provider gender. The percentage of women responding that they would prefer a female health care provider for routine care was 36.76%; for OB-GYN care, 63.61%; and for mental health counseling, 37.32% (Table 20).

Access to Medical Care

Women were asked whether they had employer provided health care, private health insurance, or access to military medical care during different periods of time. The percentage reporting such access to medical care before deployment was 96.20%; during ODS/S, 95.19%; and after ODS/S, 92.43% (Table 21).

Access to Dental Care

Participants were also asked whether they had employer provided dental care, private dental insurance, or access to military dental care during different periods of time. The percentage reporting such access to dental care before deployment was 95.94%%; during ODS/S, 90.55%; and after ODS/S, 93.77% (Table 22).

Perceived Need for Supplemental Insurance

Survey participants were asked whether a short term government sponsored supplemental health insurance policy would have been of use to them or their family during different periods of time. The percentage indicating that such a policy would be useful prior to deployment was 12.25%;

during ODS/S, 11.28%; and after ODS/S, 24.02% (Table 23). When asked whether they would purchase such supplemental insurance if it were made available to them, the proportions of women indicating they would were: before deployment, 17.80%; during ODS/S, 20.13%; and after ODS/S, 30.16%.

Final Impressions

At the close of the questionnaire participants were asked to rate a number of aspects of their ODS/S health care experience and the health care providers they encountered.

Women were asked their final overall impression of their health care experience during deployment. The most frequent response was, "very good" (38.27%), with 12.41% rating their overall health care experience as either "poor" or "fair" (Table 24). When participants were asked to rate health care providers' knowledge and competence, the most frequent response was, "very good" (43.71%), with 8.47% responding either "poor" or "fair." The most frequent rating given for the providers' concern about the participants' health was, "very good" (38.63%), with 12.94% rating providers' concern as either "poor" or "fair." When asked to rate the appropriateness of the length of time the providers spent with them, the most frequent response women gave was, "very good" (34.21%), with 16.90% rating this aspect of care as either "poor" or "fair." Participants' most frequent rating of the completeness of providers' answers to their questions was, "excellent" (31.51%), with 10.71% rating completeness of answers as either "poor" or "fair." When asked to rate the providers' efforts to make sure patients understood information about health problems and medications, the most frequent response was, "very good" (31.72%), with 14.12% rating providers' efforts as either "poor" or "fair." Women were also asked to rate the providers' efforts to completely explain the symptoms that led to the visit. The most frequent response was, "very good" (30.41%), with 17.15% rating this aspect of care either "poor" or "fair."

DISCUSSION

These data indicate that the population of female USAF personnel deploying in support of Operation Desert Shield/Desert Storm was very healthy and physically fit. A very low fraction indicated poor or fair health and a similarly low percentage low physical fitness prior to deployment. Lifetime health status was also very high. By way of comparison, only 1.29% of the women in this survey reported poor or fair health prior to deployment. However, data from the Behavioral Risk Factor Surveillance System, coordinated by the Centers for Disease Control and Prevention, indicate that in 1993 the median prevalence of self-reported poor or fair health status in the United States was 12.71%.[3]

When viewed from a longitudinal rather than a cross-sectional perspective, the percentages of women with declining self-reported health status (nearly 16%) and declining self-reported

physical fitness (over 8%) are troubling. The self-reported decline in physical fitness is particularly difficult to explain given the context of a wartime military deployment. This finding requires further evaluation.

High levels of access to care were found for both medical care and dental care. This was true before, during, and after deployment. For medical care the lowest access level was reported after deployment; however, this "low" level was still over 92% (or nearly 8% not having health care coverage). By way of comparison, data from the state-based Behavioral Risk Factor Surveillance System indicate that in 1993, the median percentage of U.S. adults reporting no health care coverage was nearly 13%, with 17 states having more than 15% reporting no coverage.[3] Although self-reported access to medical and dental care for the surveyed women was high, a substantial percentage indicated a need for supplemental insurance as well as a willingness to purchase it. This reported need to a supplemental family health insurance policy was much higher for the period after ODS/S than before or during deployment.

This study provides unique information regarding the frequency of illness among females during a large-scale wartime deployment. Given that future large deployments will likely involve substantial numbers of female service members, the information should have great utility in planning for medical staffing and resourcing. Additional valuable information was collected on medical care visit patterns, satisfaction with care, and other areas.

Affecting one third of women in the sample, the most frequent type of illness experienced by the women during deployment was gastrointestinal. The illness category most frequently leading to a provider visit, in over nine of every ten cases, was orthopedic injuries. The illness type reported most frequently as persisting after ODS/S was gynecological, which reportedly persisted in nearly two of every three cases. Satisfaction with care varied widely across illness categories, with the highest reported for orthopedic injuries (73%), and the lowest for emotional health/mental well-being (27%).

Other significant findings were noted relating to mental health. For most conditions participants most frequently reported only one or two visits, the most frequently reported number of visits for mental health was four or more. Although for most conditions the percentage of women who reported they were embarrassed by their illness was low, nearly 50% of participants with a mental health problem indicated they were embarrassed by it. This high prevalence of embarrassment may have contributed to the nearly twofold difference between the percentage of women seeking mental health care during ODS/S and the percentage who would have done so in the U.S. Substantial disparity was also noted between the *actual* and *desired* times the women reported it took them to obtain a visit with a mental health provider (several weeks vs. immediately).

Strong preferences for female providers were found for OB-GYN and mental health conditions. In the case of OB-GYN conditions, this preference did not appear to represent an obstacle to seeking care. However, for mental health conditions only one third of those affected reported

seeking care, and a strong provider gender preference may have contributed to this problem if only male providers were available.

Overall the women surveyed gave high ratings for the medical services received during ODS/S. Participants' ratings for health care access, availability, and adequacy were "good" or "very good." The women's rating for their overall health care experience during ODS/S was "very good." Participants gave the highest negative ratings to providers' efforts to completely explain the women's symptoms.

Over 40% of married women in the sample had spouses on active duty when deploying. Over 20% of married women deploying reported that their spouse also deployed to ODS/S. These cases of "dual deployment" likely created profound difficulties where dependent children were involved. Over 25% of women in the sample indicated they had one or more dependent children at time of deployment, with an average age of approximately 4 years. It is not known whether the divorce rate of 27% in deployed women differs from that in the general active duty female USAF population.

These data are all self-reported and are based on women's recollections and impressions of events approximately five years in the past. However, the validity and reliability of the participants' responses is likely to be good given the highly significant nature of the ODS/S deployment in the women's lives. For many the deployment involved a protracted separation from their families and loved ones, and for these and other reasons, many of the events surrounding and during the deployment are likely to be more memorable than other life events. Several reports from the literature indicate that women have good recall for significant life events, particularly those related to health. Casey et al.[4] found that 50-year-old adults could accurately recall events in early childhood and adolescence, such as height, weight, obesity status, onset of menarche, and year of maximal growth in height. Colditz et al.[5] found that nurses aged 30-55 years had accurate recall of year of menopause. Paganini-Hill and Chao[6] also emphasized the need to use specific language to obtain accurate reports of health events, e.g., asking whether a myocardial infarction occurred, as opposed to a "heart attack."

This study found generally high overall ratings for availability, accessibility, and adequacy of the health care female ODS/S veterans received during deployment, while identifying numerous opportunities for improvement. In particular, mental health problems were frequent and women reported problems with access to care and reluctance to seek care for these problems. Declines in health status and physical fitness level were reported by a not insignificant percentage of participants. Prevalence of cigarette smoking increased during deployment. Further study is needed to investigate possible risk factors associated with declining health status and physical fitness level.

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APPENDIX

Detailed Results Tables

TABLE 1. Health status and physical fitness level

Characteristic	N with characteristic	%	(95% CI*)
Health during most of life very good	88	48.58	(41.11-56.05)
Health during most of life poor or fair	3	1.52	(0.00-3.22)
Had chronic health problems before ODS/S	34	17.42	(12.01-22.84)
Health before ODS/S poor or fair	2	1.29	(0.00-3.12)
Health during ODS/S poor or fair	13	6.65	(3.09-10.20)
Health after ODS/S poor or fair	30	16.37	(10.93-21.82)
Health status declined from pre- to post-ODS/S	29	15.87	(10.48-21.26)
Physical fitness level before ODS/S poor or fair	8	4.31	(1.35-7.27)
Physical fitness level during ODS/S was poor or fair	13	6.36	(3.03-9.69)
Physical fitness level after ODS/S was poor or fair	21	11.00	(6.51-15.49)
Physical fitness level declined from pre- to post-ODS/S	16	8.48	(4.41-12.55)

* Confidence interval.

TABLE 2. Sources of routine health care

Characteristic	N with characteristic	%	(95% CI*)
Routine care from military clinic/hospital before ODS/S	180	97.47	(94.94-99.99)
Routine care from civilian physician (using insurance) before ODS/S	4	2.53	(0.01-5.06)
Routine care from military clinic/hospital during ODS/S	140	76.29	(69.95-82.63)
Routine care from other specified sources during ODS/S	34	19.12	(13.25-25.00)
Routine care from other unspecified sources during ODS/S	8	4.59	(1.38-7.79)
Routine care from military clinic/hospital after ODS/S	173	94.08	(90.57-97.59)
Routine care from civilian physician (using insurance) after ODS/S	4	2.21	(0.00-4.43)
Routine care from civilian physician (not using insurance) after ODS/S	2	1.29	(0.00-3.12)
Routine care from VA after ODS/S	1	0.50	(0.00-1.49)
Routine care from other specified sources after ODS/S	2	0.92	(0.00-2.18)
Routine care from other unspecified sources after ODS/S	2	1.01	(0.00-2.39)

* Confidence interval.

TABLE 3. Sources of OB-GYN health care

Characteristic	N with characteristic	%	(95% CI*)
OB-GYN care from military clinic/hospital before ODS/S	177	96.00	(93.00-99.01)
OB-GYN care from civilian physician (using insurance) before ODS/S	5	2.71	(0.29-5.13)
OB-GYN care from other unspecified source before ODS/S	2	1.29	(0.00-3.12)
OB-GYN care from military clinic/hospital during ODS/S	109	63.63	(56.30-70.97)
OB-GYN care from civilian physician (using insurance) during ODS/S	1	0.53	(0.00-1.58)
OB-GYN care from other specified sources during ODS/S	21	12.36	(7.34-17.39)
OB-GYN care from other unspecified sources during ODS/S	42	23.47	(17.09-29.86)
OB-GYN care from military clinic/hospital after ODS/S	169	92.02	(88.05-95.99)
OB-GYN care from civilian physician (using insurance) after ODS/S	8	4.22	(1.28-7.16)
OB-GYN care from civilian physician (not using insurance) after ODS/S	4	2.25	(0.00-4.51)
OB-GYN care from VA after ODS/S	1	0.50	(0.00-1.49)
OB-GYN care from other unspecified sources after ODS/S	2	1.01	(0.00-2.39)

* Confidence interval.

TABLE 4. Medical conditions experienced during ODS/S

Characteristic	N with Characteristic	%	(95% CI*)
Had gastrointestinal illnesses during ODS/S	63	33.48	(26.53-40.44)
Had dermatological conditions during ODS/S	31	16.65	(11.13-22.17)
Had gynecological conditions during ODS/S	33	18.59	(12.71-24.48)
Had eye illnesses or injuries during ODS/S	8	3.85	(1.24-6.46)
Had mental health conditions during ODS/S	37	19.76	(13.95-25.57)
Had orthopedic/surgical injuries during ODS/S	18	10.25	(5.63-14.87)
Had medical illnesses during ODS/S	29	14.76	(9.74-19.78)
Had injuries due to heat or cold during ODS/S	25	14.98	(9.54-20.43)
Had dental injuries, diseases, or conditions during ODS/S	15	8.22	(4.10-12.33)
Had other conditions during ODS/S	14	7.56	(3.69-11.44)

* Confidence interval.

TABLE 5. Gastrointestinal conditions

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	59	94.25	(88.74-99.77)
Persisted after ODS/S	25	40.25	(27.41-53.08)
Sought medical care	44	69.72	(57.79-81.65)
Would have sought medical care if in U.S.	47	74.99	(63.56-86.42)
Seen by medical personnel once	23	37.07	(24.60-49.55)
Satisfied with care and treatment	37	60.02	(47.36-72.68)
Saw male health care provider	33	56.71	(43.58-69.84)
Saw female health care provider	4	7.27	(0.10-14.44)
Saw both male and female health care providers	5	7.25	(1.08-13.42)
Felt embarrassed about illness	12	18.21	(8.57-27.86)
Seen immediately for illness	18	36.73	(22.52-50.93)
Thought should have been seen immediately for illness	28	51.44	(37.44-65.44)
Major reason for not seeking care: not severe or important enough	9	13.97	(5.10-22.84)

* Confidence interval.

TABLE 6. Dermatological conditions

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	26	83.47	(69.07-97.87)
Persisted after ODS/S	18	63.01	(44.34-81.68)
Sought medical care	13	41.15	(23.01-59.29)
Would have sought medical care if in U.S.	23	71.48	(57.61-85.36)
Seen by medical personnel two to three times	7	24.68	(7.58-41.78)
Satisfied with care and treatment	13	40.76	(23.11-58.41)
Saw male health care provider	12	42.00	(22.93-61.08)
Saw both male and female health care providers	1	2.76	(0.00-8.16)
Felt embarrassed about condition	5	17.55	(2.33-32.77)
Seen within a day or two for condition	8	38.05	(15.39-60.72)
Thought should have been seen immediately for condition	8	34.92	(15.41-54.43)
Major reason for not seeking care: not severe or important enough	5	18.23	(3.29-33.17)

* Confidence interval.

TABLE 7. Gynecological conditions

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	28	84.08	(71.07-97.08)
Persisted after ODS/S	21	65.52	(48.92-82.13)
Sought medical care	24	74.49	(59.43-89.55)
Would have sought medical care if in U.S.	30	88.80	(76.67-100.00)
Seen by medical personnel two to three times	12	39.31	(21.16-57.46)
Satisfied with care and treatment	19	61.03	(43.87-78.19)
Saw male health care provider	20	66.00	(48.40-83.59)
Saw female health care provider	1	4.48	(0.00-13.26)
Saw both male and female health care providers	4	10.64	(0.73-20.54)
Felt embarrassed about condition	15	49.63	(32.53-66.74)
Seen after more than one week for condition	9	31.96	(13.52-50.39)
Thought should have been seen immediately for condition	14	43.16	(24.85-61.47)
Major reason for not seeking care: not severe or important enough	2	6.96	(0.00-16.84)
Major reason for not seeking care: no confidence in providers	2	6.96	(0.00-16.84)
Major reason for not seeking care: have to wait too long	2	5.44	(0.00-12.73)

* Confidence interval.

TABLE 8. Eye illnesses and injuries

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	8	100.00	(100.00-100.00)
Persisted after ODS/S	0	0.00	(0.00-0.00)
Sought medical care	6	75.00	(40.32-100.00)
Would have sought medical care if in U.S	6	86.28	(59.39-100.00)
Seen by medical personnel once	4	51.15	(16.46-85.83)
Satisfied with care and treatment	5	63.07	(25.86-100.00)
Saw male health care provider	6	75.00	(40.32-100.00)
Felt embarrassed about illness/injury	1	11.93	(0.00-35.30)
Seen immediately for illness/injury	3	50.77	(6.49-95.04)
Thought should have been seen within a day or two for illness/injury	4	58.08	(19.14-97.01)
Major reason for not seeking care: not severe or important enough	1	11.93	(0.00-35.30)

* Confidence interval.

TABLE 9. Changes in emotional health and well being (mental health)

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	33	90.71	(84.95-96.47)
Persisted after ODS/S	18	49.04	(31.69-66.38)
Sought medical care	11	33.06	(17.31-48.81)
Would have sought medical care if in U.S.	20	56.65	(41.01-72.28)
Seen by medical personnel four or more times	8	23.95	(9.03-38.87)
Satisfied with care and treatment	9	26.60	(11.18-42.03)
Saw male health care provider	12	34.56	(18.08-51.04)
Saw both male and female health care providers	2	6.52	(0.00-15.77)
Felt embarrassed about condition	16	49.27	(32.41-66.12)
Seen after more than one week for condition	9	45.69	(24.06-67.32)
Thought should have been seen immediately for condition	11	50.82	(29.10-72.54)
Major reason for not seeking care: not severe or important enough	11	28.76	(13.58-43.94)

* Confidence interval.

TABLE 10. Orthopedic/surgical injuries

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	15	82.52	(62.91-100.00)
Persisted after ODS/S	8	43.07	931.69-66.38)
Sought medical care	16	90.61	(77.58-100.00)
Would have sought medical care if in U.S.	18	100.00	(100.00-100.00)
Seen by medical personnel two to three times	6	34.63	(9.35-58.86)
Satisfied with care and treatment	13	73.13	(50.74-95.51)
Saw male health care provider	14	78.04	(56.55-99.52)
Saw female health care provider	1	7.66	(0.00-22.69)
Saw both male and female health care providers	1	4.91	(0.00-14.71)
Felt embarrassed about injury	1	4.48	(0.00-13.26)
Seen immediately for injury	10	62.03	(37.82-86.25)
Thought should have been seen immediately for injury	12	68.65	(45.41-91.88)
Major reason for not seeking care: friends would make fun of me	1	4.48	(0.00-13.26)
Major reason for not seeking care: could not get appointment	1	4.48	(0.00-13.26)
Major reason for not seeking care: no confidence in providers	1	4.48	(0.00-13.26)
Major reason for not seeking care: too embarrassed to see provider	1	4.48	(0.00-13.26)
Major reason for not seeking care: not enough time in duty day	1	4.48	(0.00-13.26)

* Confidence interval.

TABLE 11. Medical illnesses

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	25	86.66	(74.20-99.13)
Persisted after ODS/S	16	58.37	(39.65-77.09)
Sought medical care	21	72.01	(54.13-89.90)
Would have sought medical care if in U.S.	24	83.55	(70.02-97.09)
Seen by medical personnel once	10	36.23	(16.21-56.25)
Satisfied with care and treatment	17	60.25	(39.88-80.61)
Saw male health care provider	18	66.09	(45.96-86.22)
Saw both male and female health care providers	2	6.82	(0.00-15.99)
Felt embarrassed about illness	5	16.45	(2.91-29.98)
Seen immediately for illness	12	52.12	(28.93-75.31)
Thought should have been seen immediately for illness	17	69.62	(48.70-90.54)
Major reason for not seeking care: no confidence in providers	3	11.84	(0.00-25.65)

* Confidence interval.

TABLE 12. Injuries due to heat or cold

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/ S	25	100.00	(100.00-100.00)
Persisted after ODS/ S	2	8.60	(0.00-20.80)
Sought medical care	15	61.37	(40.93-81.81)
Would have sought medical care if in U.S.	15	61.66	(42.50-80.83)
Seen by medical personnel once	11	48.60	(27.36-69.84)
Satisfied with care and treatment	14	60.90	(40.67-81.14)
Saw male health care provider	10	43.61	(21.40-65.81)
Saw female health care provider	2	12.44	(0.00-27.84)
Saw both male and female health care providers	1	3.36	(0.00-9.94)
Felt embarrassed about injury	1	5.53	(0.00-16.31)
Seen immediately for injury	13	66.23	(43.26-88.20)
Thought should have been seen immediately for injury	12	61.84	(38.35-85.32)
Major reason for not seeking care: not severe or important enough	3	11.96	(0.00-25.55)

* Confidence interval.

TABLE 13. Dental injury, disease, or condition

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	13	84.32	(62.07-100.00)
Persisted after ODS/S	5	37.35	(7.30-67.40)
Sought medical care	12	78.73	(53.94-100.00)
Would have sought medical care if in U.S.	15	100.00	(100.00-100.00)
Seen by medical personnel two or three times	6	45.88	(16.65-75.11)
Satisfied with care and treatment	9	64.30	(35.06-93.55)
Saw male health care provider	7	52.98	(27.08-78.87)
Saw female health care provider	4	24.37	(7.12-41.63)
Seen immediately for injury/disease/condition	5	37.52	(10.62-64.63)
Thought should have been seen immediately for injury/disease/condition	6	39.10	(10.47-67.72)
Major reason for not seeking care: no confidence in providers	2	11.71	(0.00-27.95)

* Confidence interval.

TABLE 14. Other conditions

Characteristic	N with characteristic	%	(95% CI*)
Onset during ODS/S	14	100.00	(100.00-100.00)
Persisted after ODS/S	6	39.91	(17.33-62.49)
Sought medical care	10	69.66	(40.99-98.33)
Would have sought medical care if in U.S.	13	93.35	(80.31-100.00)
Seen by medical personnel once	6	39.33	(16.75-61.91)
Satisfied with care and treatment	6	42.13	(18.94-65.32)
Saw male health care provider	10	69.66	(40.99-98.33)
Saw both male and female health care providers	1	6.65	(0.00-19.69)
Seen immediately for condition	4	36.57	(12.66-60.47)
Thought should have been seen immediately for condition	7	54.02	(31.44-76.60)
Major reason for not seeking care: not severe or important enough	2	17.03	(0.00-41.20)

* Confidence interval.

TABLE 15. Satisfaction summary measures

Characteristic	N with characteristic	%	(95% CI*)
Professionalism and concern of providers: excellent	43	32.08	(24.03-40.14)
Professionalism and concern of providers: fair or poor	28	22.31	(14.89-29.73)
Sensitivity of providers: excellent	43	31.32	(25.55-39.09)
Sensitivity of providers: fair or poor	29	22.81	(15.34-30.27)
Regard for privacy during procedures: excellent	41	31.83	(23.54-40.12)
Regard for privacy during procedures: fair or poor	15	12.12	(6.24-18.01)

* Confidence interval.

TABLE 16. Health care utilization

Characteristic	N with characteristic	%	(95% CI*)
Did not use medical services during ODS/S	9	6.50	(2.30-10.70)
Used medical services once during ODS/S	33	24.71	(17.16-32.35)
Used medical services twice during ODS/S	26	19.76	(12.73-26.78)
Used medical services three times during ODS/S	13	9.82	(4.57-15.06)
Used medical services four or more times during ODS/S	49	39.22	(30.62-47.82)

* Confidence interval.

TABLE 17. Quality and other summary measures

Characteristic	N with characteristic	%	(95% CI*)
Overall quality of medical care during ODS/S: good	45	28.12	(20.93-35.31)
Overall quality of medical care during ODS/S: fair or poor	32	20.10	(13.68-26.53)
Physicians during ODS/S: very good	51	35.07	(27.17-42.96)
Physicians during ODS/S: fair or poor	18	11.14	(6.28-16.01)
Other providers during ODS/S: very good	62	42.61	(34.32-50.91)
Other providers during ODS/S: fair or poor	13	8.43	(4.01-12.84)
Support staff during ODS/S: very good	76	49.44	(42.26-58.85)
Support staff during ODS/S: fair or poor	9	5.94	(2.13-9.74)
Facilities during ODS/S: good	50	31.13	(23.80-38.45)
Facilities during ODS/S: fair or poor	45	26.01	(19.32-32.69)
Accessibility during ODS/S: very good	54	35.20	(27.76-42.63)
Accessibility during ODS/S: fair or poor	22	12.34	(7.49-17.19)
Availability during ODS/S: good	58	38.16	(30.74-45.59)
Availability during ODS/S: fair or poor	25	14.19	(8.96-19.42)
Adequacy during ODS/S: good	56	35.79	(28.17-43.41)
Adequacy during ODS/S: fair or poor	23	13.41	(8.22-18.60)
During ODS/S compared to peacetime: good	50	30.62	(23.33-37.92)
During ODS/S compared to peacetime: fair or poor	55	32.34	(25.12-39.55)
Overall rating during ODS/S: good	57	34.93	(27.40-42.46)
Overall rating during ODS/S: fair or poor	25	13.81	(8.78-18.83)

* Confidence interval.

TABLE 18. Behavioral factors impacting health status

Characteristic	N with characteristic	%	(95% CI*)
Smoked cigarettes before ODS/S	54	28.85	(22.25-35.44)
Smoked cigarettes during ODS/S	60	32.21	(25.46-38.86)
Smoked cigarettes after ODS/S	50	26.67	(20.32-33.02)
Exercised 30 minutes 3 or more times per wk prior to deployment	115	62.68	(55.44-69.93)

* Confidence interval.

TABLE 18A. Behavioral factors impacting health status (cont.)

Variable	Mean	(Range)
Number of cigarettes smoked a day before ODS/S	13.67	(0-40)
Number of cigarettes smoked a day during ODS/S	18.56	(0-60)
Number of cigarettes smoked a day after ODS/S	14.22	(0-40)

TABLE 19. Marriage and family topics

Characteristic	N with characteristic	%	(95% CI*)
Spouse also served in ODS/S	20	20.31	(12.09-28.52)
Divorce or separation since ODS/S	27	27.08	(18.20-35.96)
Spouse employment status at deployment: active duty	42	43.47	(33.59-53.3)5
Spouse employment status at deployment: Reserve/National Guard	2	2.39	(0.00-5.81)
Spouse employment status at deployment: unemployed	3	2.81	(0.00-5.97)
Spouse employment status at deployment: full-time	30	30.27	(20.93-39.61)
Spouse employment status at deployment: part-time	4	3.78	(0.12-7.43)
Spouse employment status at deployment: homemaker	4	3.69	(0.12-7.27)
Total household income increased during ODS/S	56	33.70	(26.91-40.48)
Total household income decreased during ODS/S	44	23.54	(17.28-29.79)
Total household income stayed same during ODS/S	82	42.77	(35.73-49.80)
Had children home or school at time of deployment	53	26.48	(20.50-32.46)
Relative took care of children	47	88.88	(80.36-97.39)

* Confidence interval.

TABLE 19A. Marriage and family topics (cont.)

Variable	Mean	(Range)
Age of oldest child (years)	4.3	(0-16)
Number of children	1.4	(1-3)

TABLE 20. Preferences for provider gender

Characteristic	N with characteristic	%	(95% CI*)
Prefer female health care provider for routine care	66	36.76	(29.51-44.00)
Prefer female health care provider for OB/GYN care	118	63.61	(56.47-70.74)
Prefer female health care provider for mental health counseling	65	37.32	(29.97-44.67)

* Confidence interval.

TABLE 21. Access to medical care

Characteristic	N with characteristic	%	(95% CI*)
Had employer/military provided access to medical care before ODS/S	177	96.20	(93.15-99.26)
Had employer/military provided access to medical care during ODS/S	175	95.19	(91.84-98.54)
Had employer/military provided access to medical care after ODS/S	170	92.43	(88.35-96.51)

* Confidence interval.

TABLE 22. Access to dental care

Characteristic	N with characteristic	%	(95% CI*)
Had employer/military provided access to dental care before ODS/S	176	95.94	(92.89-98.98)
Had employer/military provided access to dental care during ODS/S	149	90.55	(86.05-95.06)
Had employer/military provided access to dental care after ODS/S	172	93.77	(90.08-97.46)

* Confidence interval.

TABLE 23. Perceived need for supplemental insurance

Characteristic	N with characteristic	%	(95% CI*)
Gov't sponsored supplemental policy would help before ODS/S	22	12.25	(7.41-17.09)
Gov't sponsored supplemental policy would help during ODS/S	20	11.28	(6.54-16.03)
Gov't sponsored supplemental policy would help after ODS/S	40	24.02	(17.35-30.69)
Would purchase gov't sponsored supplemental policy before ODS/S	30	17.80	(11.88-23.71)
Would purchase gov't sponsored supplemental policy during ODS/S	34	20.13	(13.93-26.34)
Would purchase gov't sponsored supplemental policy after ODS/S	50	30.16	(23.08-37.23)

* Confidence interval.

TABLE 24. Rating of health care experience and the health care providers

Characteristic	N with characteristic	%	(95% CI*)
Health care received: very good	56	38.27	(30.61-45.93)
Health care received: fair or poor	21	12.41	(7.44-17.38)
Provider knowledge and competence: very good	65	43.71	(35.88-51.54)
Provider knowledge and competence: fair or poor	14	8.47	(4.21-12.73)
Provider level of caring: very good	57	38.63	(30.80-46.46)
Provider level of caring: fair or poor	21	12.94	(7.72-18.16)
Providers spent enough time: very good	51	34.21	(26.54-41.89)
Providers spent enough time: fair or poor	27	16.90	(10.92-22.87)
Providers answered questions honestly and completely: excellent	50	31.51	(24.06-38.96)
Providers answered questions honestly and completely: fair or poor	18	10.71	(6.00-15.43)
Providers ensured understood health problems and medication: very good	47	31.72	(24.13-39.30)
Providers ensured understood health problems and medication: fair or poor	23	14.12	(8.74-19.50)
Providers made special effort to explain sx/problems completely: very good	46	30.41	(22.89-37.92)
Providers made special effort to explain sx/problems completely: fair or poor	27	17.15	(11.16-23.14)

* Confidence interval.